



Aquatic Habitat and Mountain Yellow-Legged Frog Restoration Project

Historically, lakes above 4,000 feet in Yosemite National Park were naturally free of fish due to the series of glaciations that scoured the Sierra Nevada creating steep waterfalls that kept fish from colonizing. As a result, organisms in the high mountain lakes and streams evolved without the presence of fish, and therefore, had no natural defenses against predators. A survey, conducted from 2000- 2002, of all the lakes in Yosemite (2,655 lakes), discovered that introduced predatory fish have a negative impact on many animals in both the aquatic and terrestrial communities. Such animals include amphibians, reptiles, insects, birds, and the endangered mountain yellow- legged frog (*Rana muscosa*).



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What is the proposed project and why is it important?

At one time, these frogs were the most abundant amphibian in the high mountain lakes of the Sierra Nevada. Populations of mountain yellow- legged frogs have declined approximately 95 percent in the Sierra Nevada, including in Yosemite National Park, and more populations are lost every year. The ecological effects of the loss of this species have been tremendous, as their former abundance made them a keystone predator and prey; a crucial agent of nutrient and energy cycling in Sierran aquatic and terrestrial ecosystems.

Yosemite is starting a project to restore native fishless ecological conditions to a small number of remote lakes. Such actions may include removal of introduced, non- native fish. Proposed actions would allow re- colonization by hundreds of native species, either naturally or through further management actions. This restoration would be most critical for the mountain yellow- legged frog.

By restoring fishless conditions to these lakes, the park hopes that populations of mountain yellow- legged frogs will return to these sites, while still providing a high- quality fishing experience to visitors who value this activity. This project will include the writing of an Environmental Assessment relying on park and public input to decide on a course of action.

What is causing this situation?

As early as the turn of the 20th century, scientists were noticing that frogs and fish very rarely occurred in the same Sierra lake or stream. Multiple interacting factors are thought to be causing the demise of the mountain yellow- legged frog. In particular, the planting of fish in many lakes and streams in the Sierra Nevada, and these fish have then preyed on frogs, eggs, and tadpoles.

Current research shows that other factors are making this situation worse. The fungal pathogen, *Batrachochytrium dendrobatidis*, or “chytrid fungus”, is infecting an increasing number of mountain yellow- legged frog populations, often resulting in their local extinction from a lake or stream. Some evidence points to this disease as a newly arrived “non- native” species. More research needs to be done to find out if something is compromising the immune systems of the frogs, such as pesticides drifting into the Sierra Nevada from Central Valley agricultural fields.

What are the next steps?

The environmental planning process is underway. Public participation and input is important in this restoration project. The park is working to figure out the most immediate and important actions to decrease the chances of mountain yellow- legged frogs from becoming extinct in Yosemite. Possibilities include:

- Re- establish mountain yellow- legged frog populations at sites where they once were present. This year we will continue the process of evaluating the extent of chytrid infection in Yosemite's frog populations, and experimentally attempt to re- establish frogs at a few sites.
- Removal of fish from less than a dozen small, remote, high- elevation lakes. These lakes currently contain non- native populations of brook, brown, or rainbow trout. Fish removals could be accomplished through the use of gill nets in the lakes and electrofishing in the lakes' incoming and outgoing streams. Once fish are removed, amphibians, snakes, insects, and birds that depend on the fish- free aquatic ecosystem will benefit. Such low- impact fish removals will have a negligible effect on recreational fishing in Yosemite because a large proportion of the park's lakes will continue to harbor healthy fish populations.

The public is invited to take part in this project. **Public scoping for this restoration project will occur from May 17, 2006 through June 16, 2006.** Scoping is an opportunity early in a planning process for the public, organizations, and other agencies to suggest issues to be considered by the National Park Service in preparing the environmental assessment (EA).

Public Participation

Public Participation in the planning process is critical. Here are some ways to learn more and stay involved:

- Attend a National Park Service's public open house to talk with project specialists and obtain more information about ongoing and future park projects.
- Add your name to the park's mailing list (to address/fax/email below) and receive planning- related notices. You can also submit your email address to receive Yosemite National Park's periodic electronic newsletter.
- Submit your comments. **Public scoping for this project will occur from May 17, 2006 through June 16, 2006.** Comments must be postmarked no later than June 16, 2006 and submitted to:

Mail: Superintendent
Attn: *Aquatic Habitat and Mountain Yellow- Legged Frog Restoration Project*
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Email: YOSE_Planning@nps.gov

- Visit online: www.nps.gov/yose/planning